BRI ISDN GATEWAY

User Guide

CONTENTS

1. INTRODUCTION

Eurotech Communication Ltd is glad you have chosen to use the BRI ISDN Gateway. We are confident due to the quality of our product, simplicity of use and excellent customer support, that the BRI ISDN Gateway will meet your communication needs and will help you saving money on your office/mobile phone calls.

The goal of our experienced team of engineers, who develop and produce our products, is to meet the growing demands of our customers in today's communications world.

We hope you enjoy using the BRI Gateway and appreciate any comments you may have as we always strive to improve our products and personal service for all of our customers.

1.1. THE BRI ISDN GATEWAY SOLUTION OVERVIEW

BRI ISDN Gateway, or BRI for short, can connect ISDN calls to GSM cellular network

The BRI is a device that connects your desk phones directly to cellular phone networks. This gateway completely bypasses the local landline telephone company.

Two desk phones can be connected to each BRI via a phone switching unit (often a PBX type switch). Each port in the BRI Gateway contains four SIM. The port can be configured to direct calls through the most economical SIM.

1.2. ABOUT THIS MANUAL

Exclusively for the BRI ISDN Gateway

BRI ISDN Gateway User Guide
www.eurotech-communication.com

1.3. TERMINOLOGY

The following is a list of important terms used in this guide and their definitions:

▶ **Gateway** – A n ISDN unit with 2 cellular ports.
▶ **SIM** – SIM card or chip
▶ **Port** (ch) – A port is single channel that can send call(s).
▶ **Cellular Card (Slave card)** – A card with cellular ports (modules).

2. INSTALLATION AND SETUP

This section will guide you through the installation and setup process, including basic configuration and a system test to ensure that all components are working properly. These steps are MANDATORY to run the BRI ISDN unless otherwise indicated.

After completing this section your Gateway is functional for basic operations. You may choose to make further configurations.

2.1. INSTALLATION OVERVIEW (GETTING STARTED)

Perform the following steps to install and setup your system:

1) Check the items delivered in your package - see *Check the Package Items* on page 5.
2) Install SIMs. See *Hardware Installation* on page 5.
    1) Connect cables, attenas and power supply. See *Connecting Cables* on page 7.
3) Install the PC management application using the CD provided - see *Software Installation* on page 7.
4) Power up the Gateway.
5) Perform basic setup - see *Basic System Setup (Basic Operations)* on page 9.

2.2. CHECK THE PACKAGE ITEMS

Make sure that your package contains the following components before installation:

▶ Main Hardware Device - The BRI ISDN Gateway
▶ Quick Installation Guide – for brief installation explanations
▶ Software Installation CD - Gateway Manager CD for MS-Windows Management Application. Includes the User Manual file and additional auxiliary utilities.
▶ Cellular Antennas
▶ ISDN Connection Cable
▶ RS-232 Serial PC Comport (COM) connection cable (RJ-45 to RS-232 COM). This facilitates configuration and monitoring of the gateway. This is referred to as the 'Com Cable' in this manual
▶ Input: 110/240V 50-60Hz, Output:12v DC adapter

2.3. HARDWARE INSTALLATION

This section describes the hardware installation.

2.3.1. HARDWARE OVERVIEW

The BRI ISDN Gateway consists of three main parts:

▶ Chassis – Housing the gateway PCB.
▶ Master Card – Located at the left side of the unit. contains the ISDN,COM, Synchronization connections

▸ Cellular Card – Located on the right side of the unit. contains 2 cellular ports. Each port has four local SIM and one antenna.

2.3.2.   INSTALLING SIMS

The following sections describe how to install SIMs in the BRI ISDN Gateway.
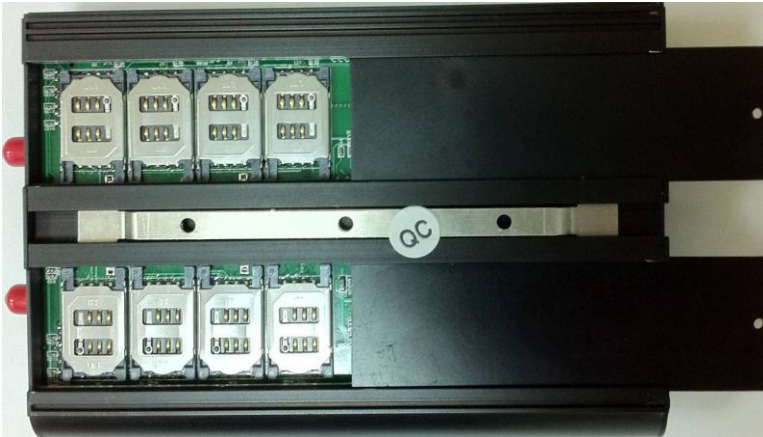
2.3.2.1. INSTALLING SIMS

On the back of the unit slide back the cover, there are 4 SIM chambers for each port to install SIM cards.

▸ *To install a SIM in a cellular card:*

1) Slide and lift the metal cover.
2) Position the SIM in the port SIM socket so that the SIM's metal contact is facing down and the snubbed edge is on the right hand side directed into the SIM socket.
3) Gently push the SIM card into the SIM socket.
4) Level and slide the metal cover.
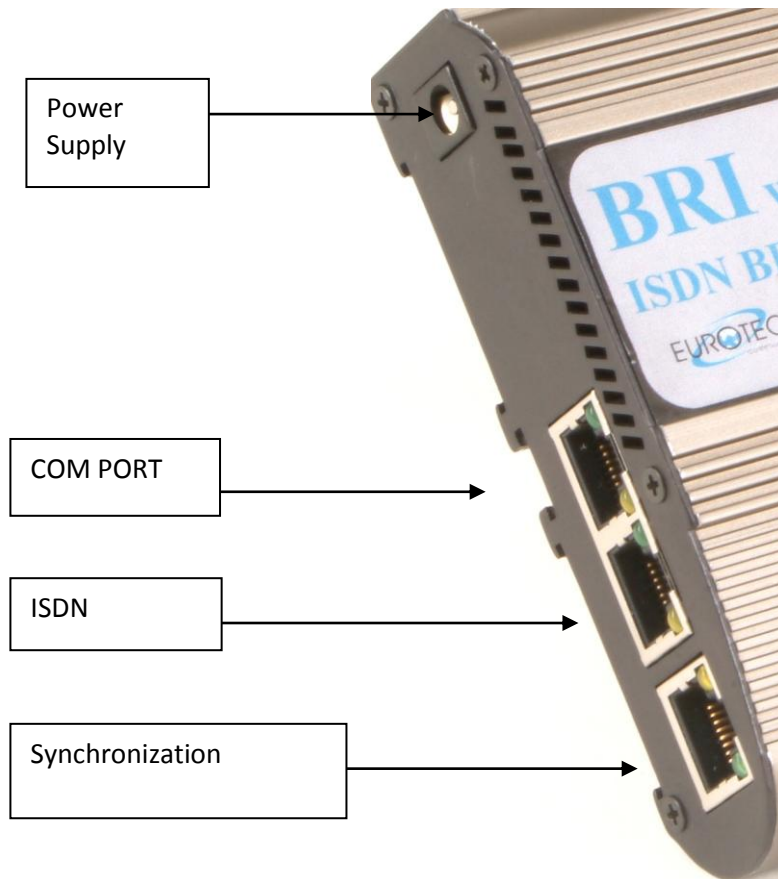5) The SIM is now installed.
6) Repeat for all sim chambers.

2.3.2.2. REMOVING SIMS

▸ *To remove a local SIM*

1) Slide and lift the metal cover.
2) Gently pull out the SIM card from the SIM socket.
3) Level and slide the metal cover.
4) Repeat for all sim chambers

2.3.3.   CONNECTING CABLES

On side panel (master card) connect the following:

BRI ISDN Gateway User Guide
www.eurotech-communication.com

Power Supply

COM PORT

ISDN

Synchronization

- ▸ ISDN cable - The ISDN cable is used to connect the system to the ISDN network.
- ▸ Power Supply Cable - Connect the power supply cable from your 110-240V 50-60Hz power outlet to the BRI Gateway power connector/adapter.
- ▸ COM Cable RS323 – The RS-232 serial connection cable between the BRI and the PC is used for configuration with the BRI Management Application.
- ▸ Antennas – Connect antenna cable per port.
  Position the antennas at least 40 centimetres apart and more than 1.5 meters from the Gateway.

2.4.   SOFTWARE INSTALLATION

Configuration is performed on an auxiliary computer by installing the BRI ISDN Management software CD for MS-Windows Application.

▸ **To install the BRI ISDN Management Software on a MS-Windows PC**

1) Insert the BRI ISDN Management Installation CD into the CD drive of the PC.
2) Navigate to the installation CD drive.
3) Double-click **setup.exe**.
4) Click Next. The **Destination Folder** appears.
5) Select the destination folder by clicking **Change** and navigating to the destination.
6) Click **Next**.

7) Click **Install**. The BRI ISDN Management application begins installation. You will be prompted when the installation is complete.

8) Click **Finish** and remove the CD.

Note: If the BRI ISDN icon appears on the Desktop, the application was successfully installed.

BRI ISDN Gateway User Guide
www.eurotech-communication.com

3. BASIC SYSTEM SETUP (BASIC OPERATIONS)

This section describes how to perform basic configurations and operations in the Gateway after you have installed the Management application.

3.1.	CONFIGURATIONS WITH THE BRI MANAGEMENT APPLICATION

After installing the BRI Management application, launch it and define the Type of Connection between the PC and the BRI Gateway as described below.

▸ *To define the PC to BRI Gateway connection:*

I) Launch the BRI Management by clicking on your PC desktop, or by selecting:

Start > Programs > Eurotech-Communication > BRI Management v5.1.

The BRI Management application window will open.

BRI ISDN Gateway User Guide
www.eurotech-communication.com
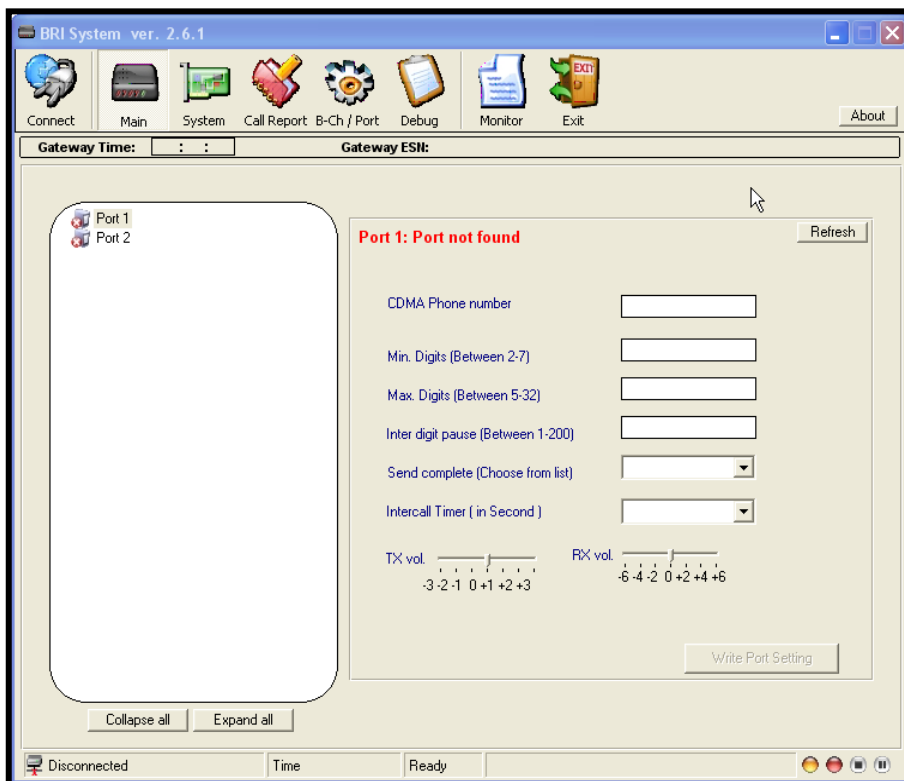
2) Click in the toolbar. The Selected Connection window will open.
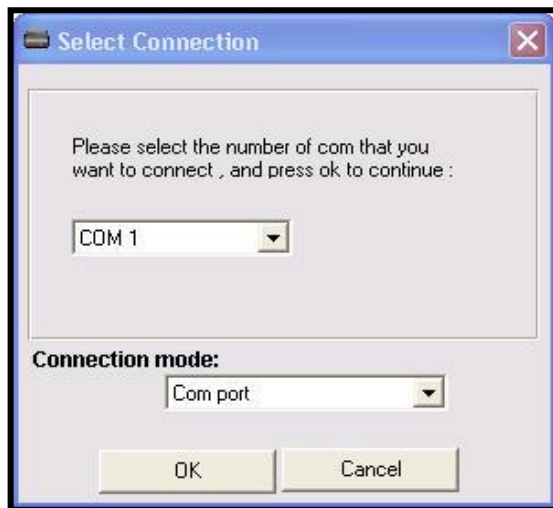
3) Select the Com Port to which the Winner Series BRI Gateway is connected to.
4) Select in the Connection Mode Com Port and click the OK button.

Note: TCP/IP Connection is avaiable only when ordered thus. see Appendix A.

After installing the Manager and defining the port connection, define port and SIM settings as described in chapter 5.

After establishing communication between the auxiliary computer and the Winner Series BRI Gateway, define groups of telephones in your office, as described in the following chapter.

4. PORT AND SIM SETTINGS

This chapter describes port dial settings, as well as timetables and channel locks for SIM cards in use.

4.1.   DEFINE DIAL SETTINGS FOR EACH PORT

▸ *To define dial settings:*

1) Click **Main Setting**.
   The Port Setting window opens.

2) To define port dial settings, choose a port and proceed as described on the following pages.

BRI ISDN Gateway User Guide
www.eurotech-communication.com
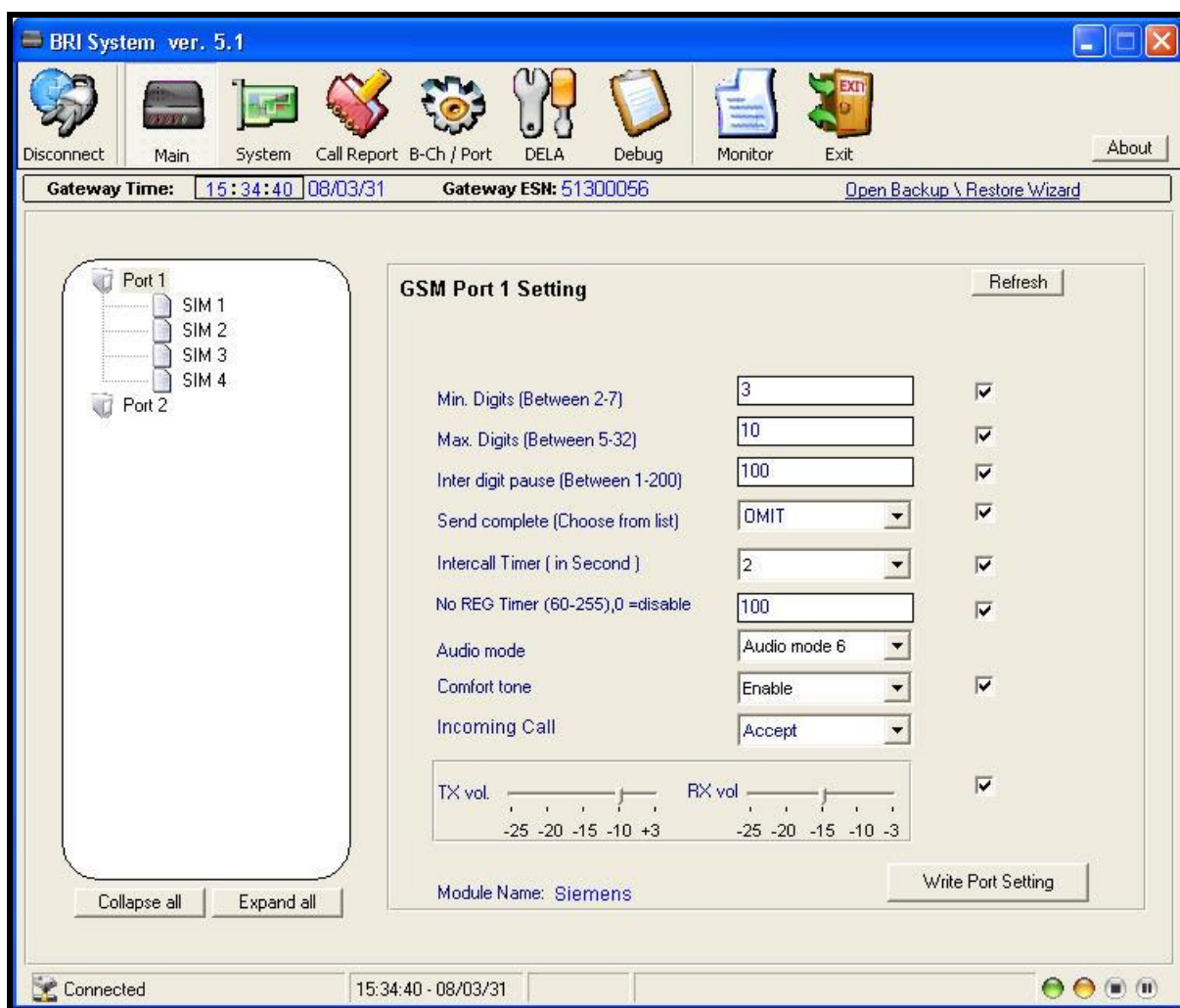
4.2. DEFINE TYPE OF DIALED NUMBERS DISPATCH MODE

You can define manual or automatic dispatch. Select the mode in which telephone numbers are dispatched to the GSM network.

▶ *To dispatch phone numbers manually:*

   1) In the Send Complete list, select HASH.

   2) In this mode, after you dialed all digits of a phone number, click [#] to send the phone number.

3) To **dispatch phone numbers automatically**, in the send complete list, select OMIT. Then set three additional parameters:

   a) Define the length of phone numbers that will be dialed from the port (within a range).
      i) In the Min. Digits box, enter the number of digits of the shortest phone number that will be dialed from this port.
      ii) In the Max. Digits box, enter the number of digits of the longest phone number that will be dialed from this port

   b) Define the Inter Digit Pause. This parameter defines a waiting time, after a digit is clicked, before the number is automatically dispatched to the GSM network.
      i) If this parameter is set too low, then incomplete phone numbers may be dispatched if the user pauses briefly while dialing.
      ii) If this parameter is set too high, then users would have to wait a long time before a number is dispatched.

The inter digit pause is activated after the minimum number of digits have been dialed. In many situations, two or three seconds may be appropriate for this parameter. Each unit of this parameter is 50 milliseconds.

For example, to set an inter digit pause of 3 seconds, enter a value of 60 in this box (60 * 50 milliseconds = 3,000 milliseconds = 3 seconds).

When a port is set to auto-dispatch phone numbers, the number is dispatched automatically after the user has dialed the maximum number of digits, or, when an inter digit pause has occurred.

4.3. DEFINE MINIMUM AMOUNT OF TIME BETWEEN OUTGOING CALLS

Setup the minimum amount of time between outgoing calls in the Intercall Timer box.

Set this parameter according to limitations of the GSM network. In many situations, **two seconds may be an appropriate value** for this parameter.

4.4. DEFINE REGISTRATION TIMER

Setup the time the module will try registering a SIM card. At the end of this time he will move to the next available SIM.

After making port settings, you **MUST** click **Write Port Setting** to send the settings to the Winner Series BRI Gateway unit. Then make settings for each SIM, as explained in the following section.

4.5. DEFINE SIM SPECIFICATIONS

In order to define a specific SIM setting you need to choose the specific SIM in the Port SIMs Tree on the left side of the main screen.

First we will define the activation time for the SIM.

Select the **[Time Table]** Tab. The Time Table Tab with SIM Spec Definition window will appear. Now you can define the main SIM definitions, time range, and days that SIM will be enabled.

▶ *To enter SIM specifications:*

1) Enter the Predial number in the Predial number box.
2) Enter **the PIN code** of the SIM in the **PIN CODE box**.
3) Select a caller identification option in the Caller ID list:
   ▸ To enable the GSM network to set caller ID standards, select Network.
   ▸ To disable identification of the SIM, select CLIR Suppression.
   ▸ To enable identification of the SIM, select CLIR Invocation.
4) In the Time Table tab, define hours, and days, that the SIM is active. Days can be divided in up to four intervals.
   a. Select an interval.
   b. Enter the hours of the interval.
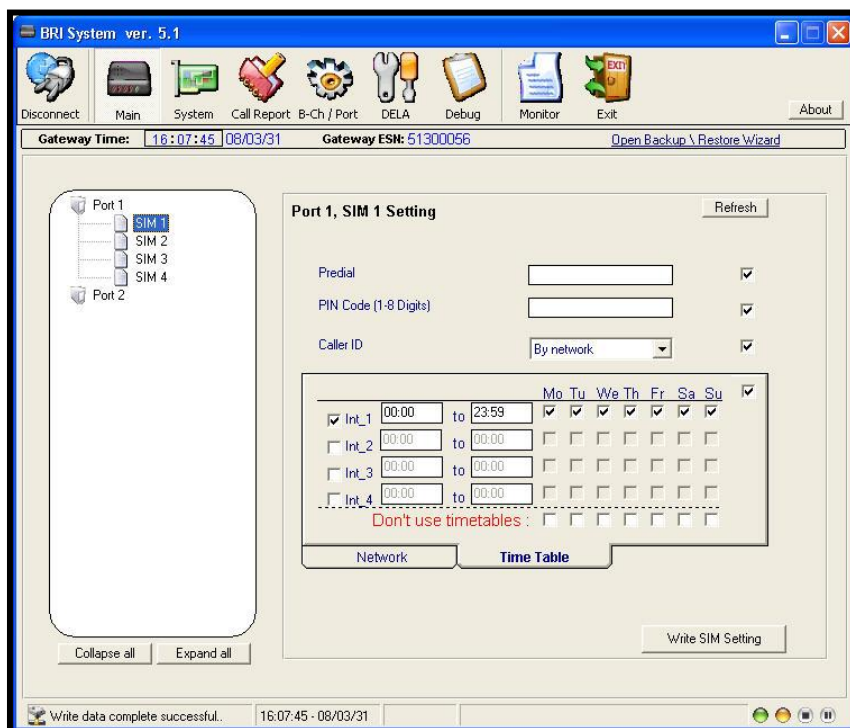
c. Select days that this interval will be activated. Select days of deactivation in the row.

4.6.   DEFINE THE SIM OPERATOR

▶ *To assign the SIM to work with a specific GSM network:*

In the **Operator ID**, enter the GSM network operator ID, between 1–999999. Enter 0 to work with the SIM operator.

BRI ISDN Gateway User Guide
www.eurotech-communication.com
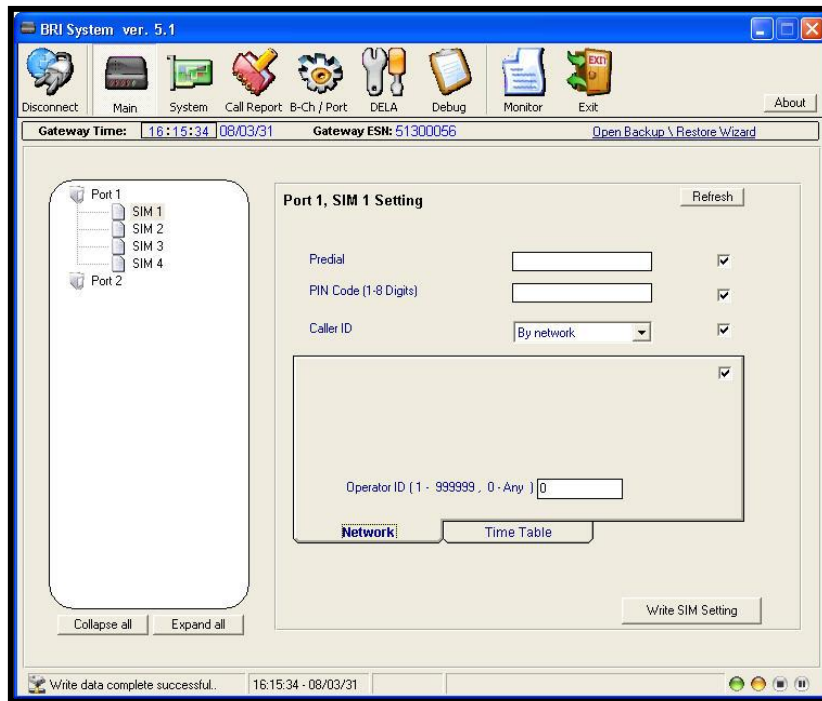
5. ISDN AND TIME SETTINGS

This section describes the required and optional ISDN settings as well as the related time setting.

5.1.   ISDN SETTINGS
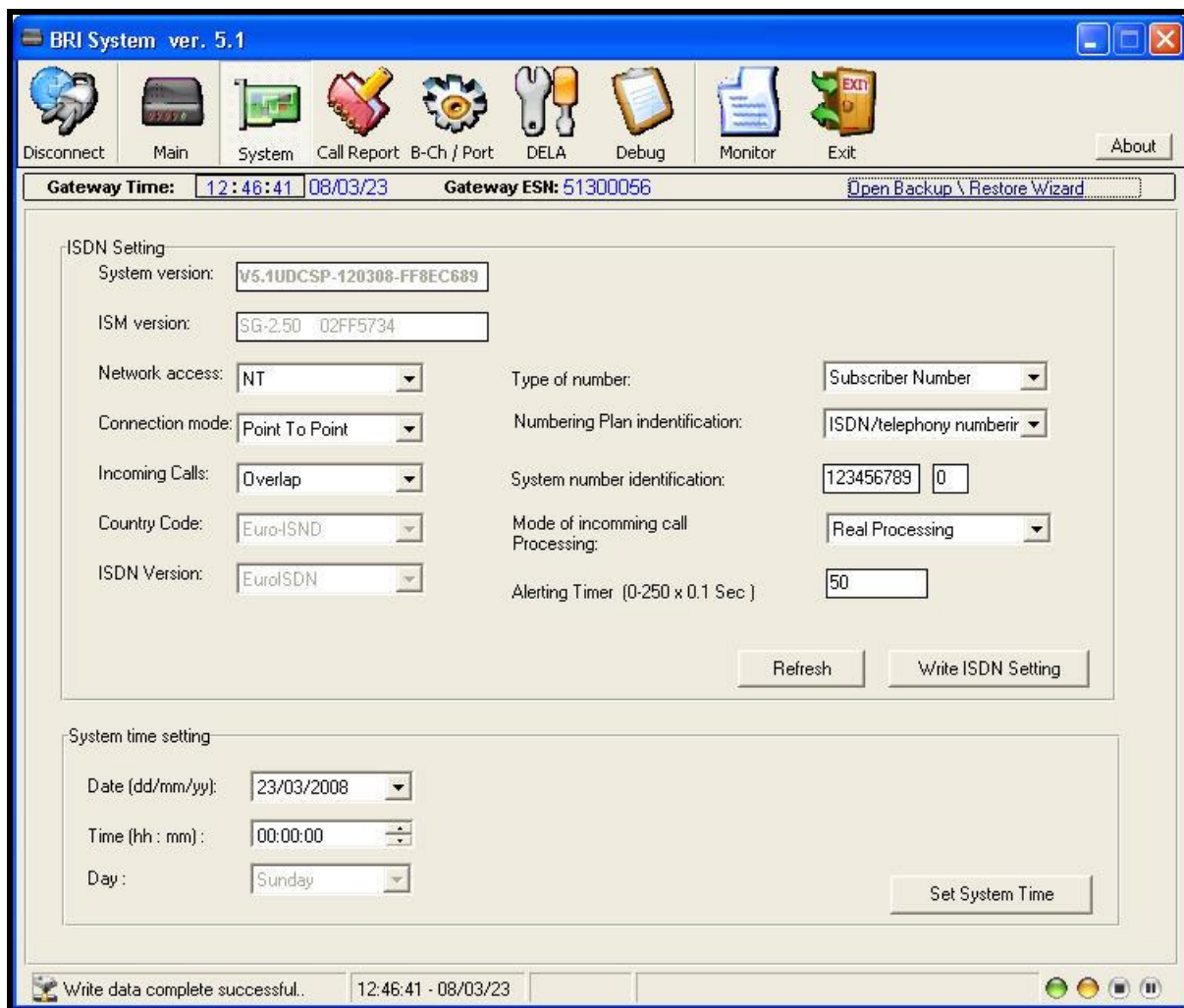
Each Winner Series BRI Gateway has a master printed circuit board (PCB). The ISDN card is a small PCB mounted on the master PCB. The ISDN card is between ports in the Winner Series BRI Gateway and the external phones PBX switching unit.

COM Port

ISDN

ISDN Synchronization
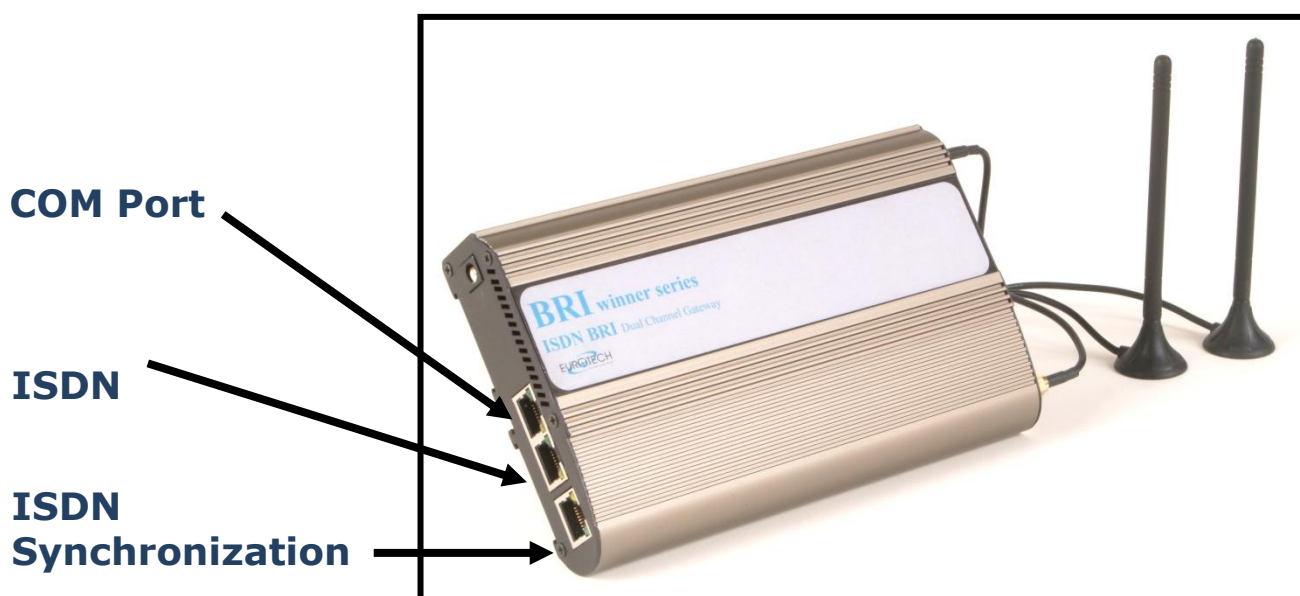
▸ *To define ISDN settings:*

1) Click: `ISDN \ Time`. The ISDN window opens. This window defines settings in the ISDN line, between the switching unit and the ISDN card.

2) Enter specifications as described on the following pages. Ensure that settings are in conformity with settings in the switching box.

4) Continue settings in the ISDN configuration window as follows:

▸ **System Version** is the version of the master card software in the PCB.

▸ The ISDN module is a small PCB connected to the master PCB. The ISDN module has an EEPROM containing ISM software.

▸ **ISM version** - the version of the ISM software.

▸ Select **NT** or **TE** in the Network access box.

▸ Select **Point to Point** or **Point Multipoint** in the Connection mode box.

▸ In the **Incoming Calls** box, select the interface of incoming calls (from the switching unit to the ISDN card), **Overlap** (pulse) or **In Block** (packet), in conformity with the setting in the switching unit.

▸ **Mode of Incoming calls processing** is the mode of earring the **ring back** tone. In Real Processing you will ear it at the begging of the call from the GSM network, in Imitation Processing the ring back will begin automatically at the end of the alerting timer.

5) If you have more than one Winner Series BRI Gateway on site, **enter the address of each Winner** Series BRI Gateway unit in **System Identification Number.**
This entry can accept number between 1 and 9 digits.

6) If you have **sub-addresses** of Winner Series BRI Gateway, enter the sub **address of each Winner** Series BRI Gateway unit in the second box, 1 digit.

7) In the Type of Number box, select the **T**ype **o**f **N**umber (**TON**) of calls, from the ISDN card to the switching unit, as defined in the switching unit.

8) The **Numbering scheme protocol**, from the ISDN card to the switching unit, is set at Number Plan Identification (**NPI**). Set this parameter as defined in the switching unit.

9) Click **Write ISDN Setting** to send **the ISDN settings to the Dual Cell unit.**

Note:

The following field boxes in this window are only displaying the existing settings:

System version: this box displays the Version of the master card Firmware.

ISM version: this box displays the version of the ISM Firmware.

Country Code: this box displays the default country code setting – EuroISDN.

ISDN version: this box displays the default ISDN version – EuroISDN.

5.2.   TIME AND DATE SETTING

At the bottom part of the ISDN window **set the date and time**. Then click **Set System Time** to send the settings to the Winner Series BRI Gateway.

6. B-CHANNEL – PORT ASSOCIATION

Communiction through a **Dual Cell** is performed via **ports** on one end, and **B-channels** on the other end: Each **Dual Cell** has **two ports**. Each port extends to a **GSM module** (**containing a SIM**). The GSM module communicates to the GSM network.

On the opposite end of the **Dual Cell**, two **B-channels** communicate to the switching unit.

GSM   Cell
phone

**Landline
Phone**

Incoming calls, from switching unit to
ISDN card: minimum digits (example
050-787-4444 = 10 digits

Outgoing calls, from ISDN card to
switching unit: maximum digits 4
(example 6001 = 4 digits)

RJ-11

PSTN
Switching

ISDN (BRI) 2 x B-
Channels Mapped into 2
operating GSM SIM Cards

**Winner Dual Cell
BRI Gateway**
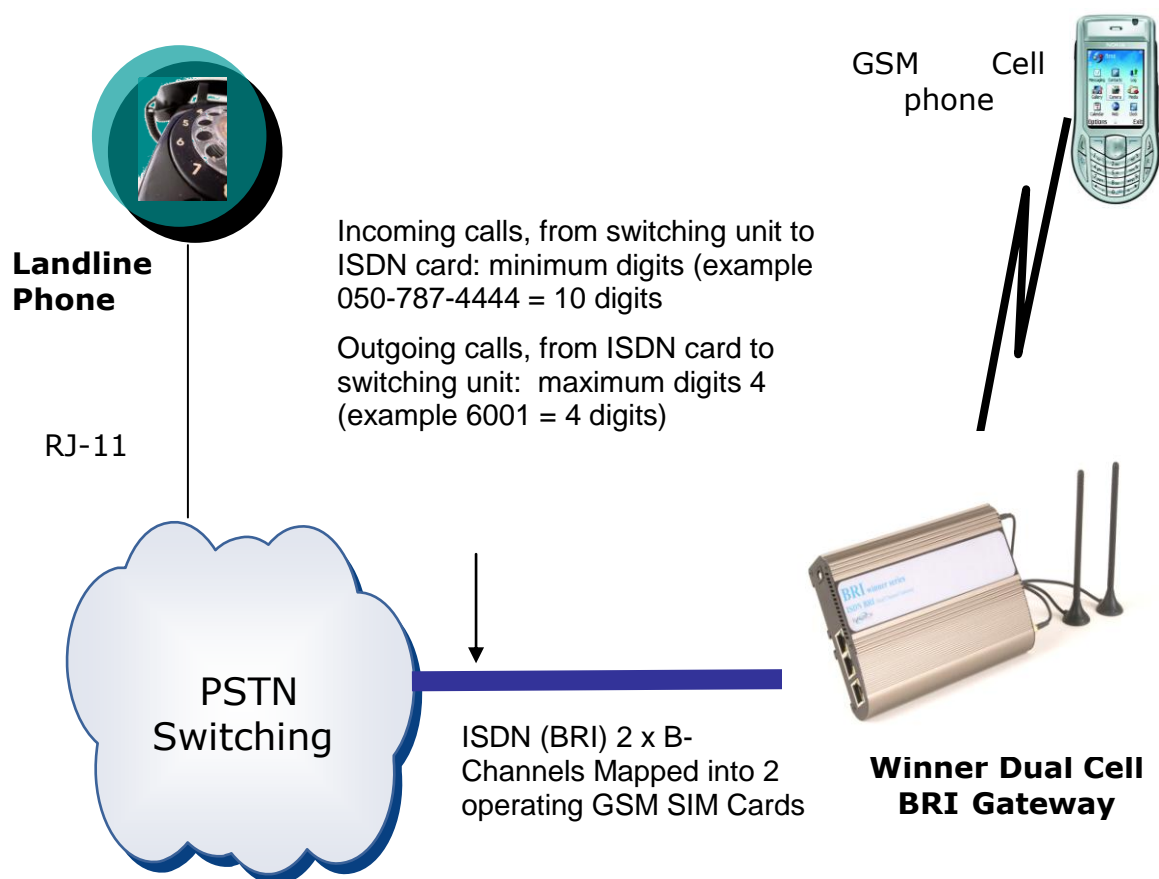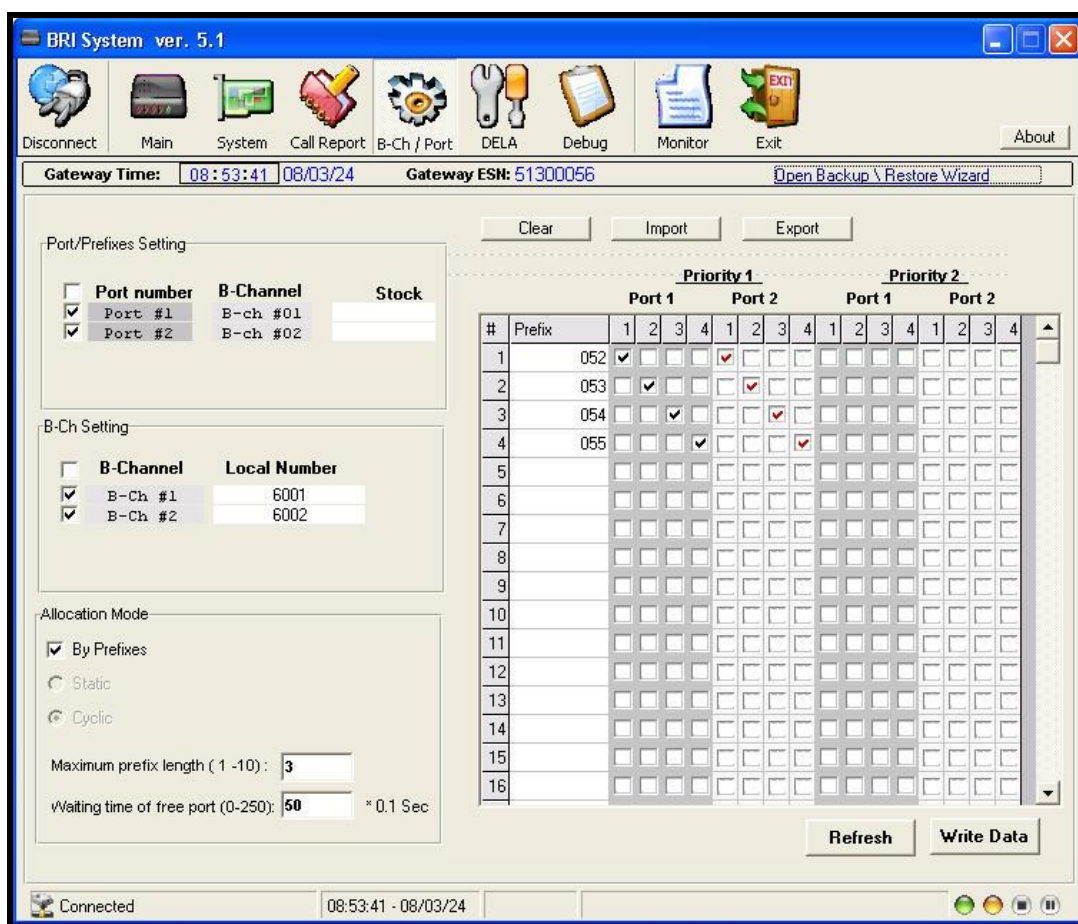
This section explains the assigning of B-channels to in-house phones and the allocation of calls to Winner Series BRI Gateway ports.

These settings are made in the B-channel/Port window.

Click **B-Ch / Port** to open the B-Channel/Port setup window.

This window is divided into four frames, as shown below.

6.1.	B-CHANNEL TO IN-HOUSE PHONE NUMBER ASSOCIATION

Assign office "in-house" phone number extensions to B-Channels

In-house phone numbers are assigned in the lower left frame.

BRI ISDN Gateway User Guide
www.eurotech-communication.com

Outgoing number refers to internal telephone numbers (For example, 6001 and 6002). For each channel that extends to a phone simply mark the check box, as shown in the screen snapshot above.

6.2. IN-HOUSE PHONE NUMBER AND GSM ASSOCIATION

This prefixes table is for associating prefix numbers (on the left of the table) of the different GSM operators to a specific SIM (1, 2, 3, and 4, on the top of the table). A port that associates with this SIM can generate calls only to GSM numbers having the defined prefixes.

Each prefix has two priorities; the BRI will make the call using the SIM with the highest priority to that prefix. If the priority is the same for both ports, the BRI will use the port1, if busy then port2.

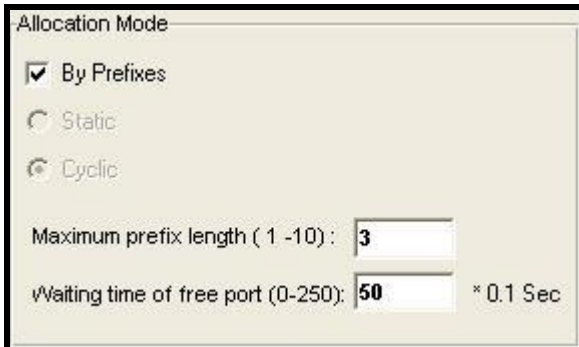| | | Priority 1 | | | | | | | | Priority 2 | | | | | | | |
| | | Port 1 | | | | Port 2 | | | | Port 1 | | | | Port 2 | | | |
#	Prefix	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	052	✔				✔											
2	053		✔				✔										
3	054			✔				✔									
4	055				✔				✔								
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	

6.3. NETWORK PREFIXES SETTINGS

The prefix table is on the right side of the B-channel/Port window. This table is used to direct calls (**from the Winner Series BRI Gateway to GSM networks**) through the appropriate SIM. For example:

▶ If the GSM network includes telephone numbers that start with 052, then this prefix could be listed in row 1 of this table, specifying the SIM and the port desired, and the priority.

▶ If the GSM network includes telephone numbers that start with 053 then this prefix could be listed in row 2 of this table, specifying the SIM and the port desired, and the priority.

In this example a call to the GSM number 0525555555 will go out using SIM 1 and a call to 0535555555 will go out using SIM 2.

If the Prefix allocation mode is selected (as described below), then the Winner Series BRI Gateway checks the prefix of the outgoing numbers, and dispatches phone calls through the appropriate SIM. This helps ensure the lowest call rate possible for the user.

6.4.   PORT ALLOCATION MODE SETTINGS

The manner in which a phone call is directed to a port is determined in this frame.

By Prefixes: if selected, then the Winner Series BRI Gateway directs a call through a port according to the defined prefixes table.

Maximum prefix length is how many digits the prefix could be.

Waiting time of free port is how many seconds the BRI will wait for the port when busy.

If **one GSM network** is designated for both ports, then select the manner in which ports will be selected:

Cyclic indicates that ports will be selected in a cyclic manner: for example, if the first call is via port 1, the following call will be directed through port 2, the third call will be directed through port 1, and so forth.

Random indicates that ports will be selected at random, for example: port 2, port 2, port 1, port 2, port 2, port 1, port 1, and so forth.

If **Static** is selected, each ISDN B channel (and its respective telephone) is linked permanently to a port as defined in the prefixes table frame.

An ISDN B channel (and its respective telephone) can be switched as described below.
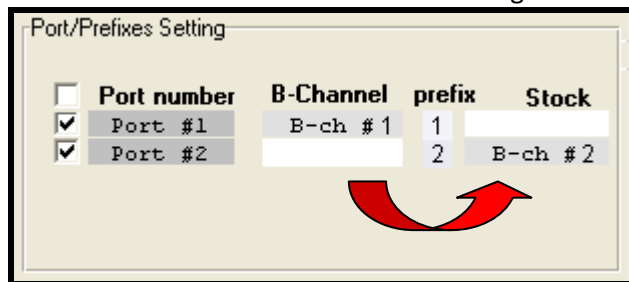
6.5.   MAKE PORT SETTINGS

Port/prefix settings are made in the upper left frame of this window and associates a port to a B-channel.
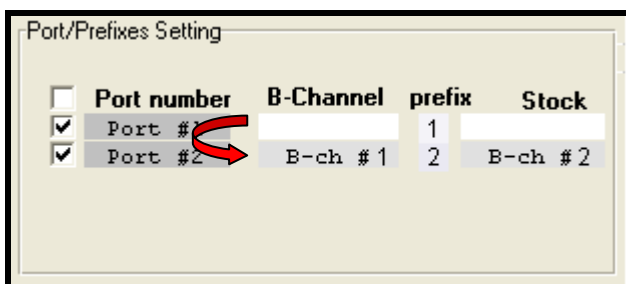
Check a port to activate it.
If you want ports permanently linked to B channels, and you want to change the order of connections, proceed as follows:

BRI ISDN Gateway User Guide
www.eurotech-communication.com

1. Click a cell in the B-channel column and drag the cell to the Stock column
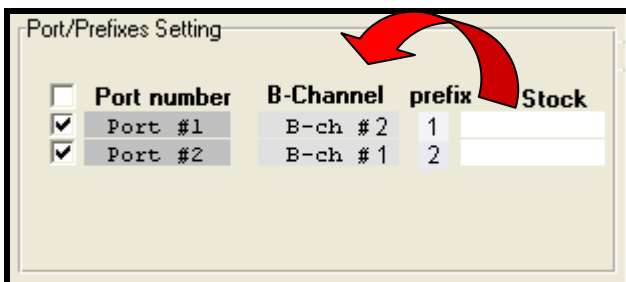
2. Click the remaining cell in the B-channel column and drag it to the row of the desired port.

3. Drag the cell in the Stock column to the desired position in the B-channel column

4. .

After completing these steps, the Dual Cell is ready for operation. Calls can be monitored.

BRI ISDN Gateway User Guide
www.eurotech-communication.com

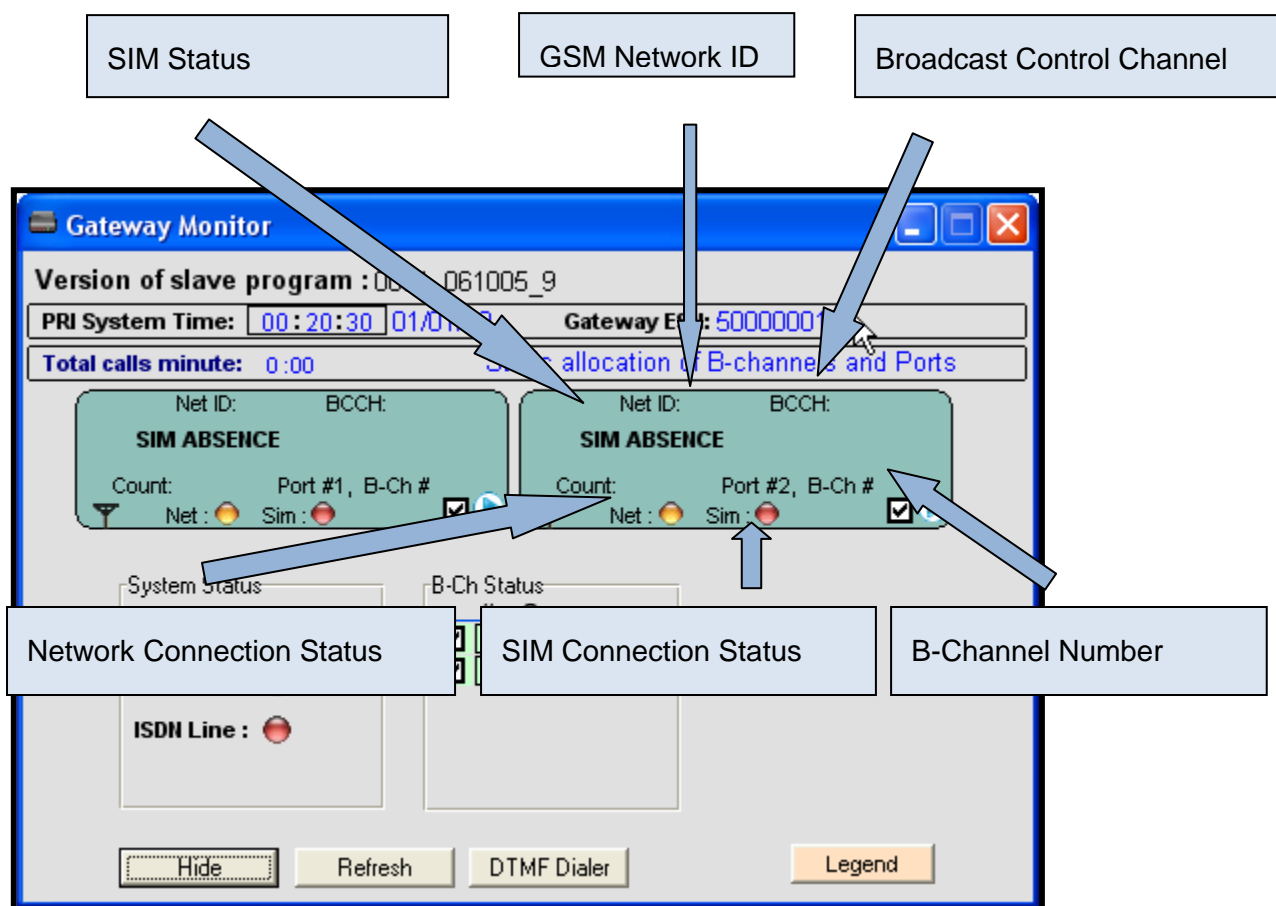# 7. MONITORING CALLS AND REPORTS

This section explains how to monitor calls and review reports.

7.1. MONITORING CALLS

▶ *To monitor calls:*
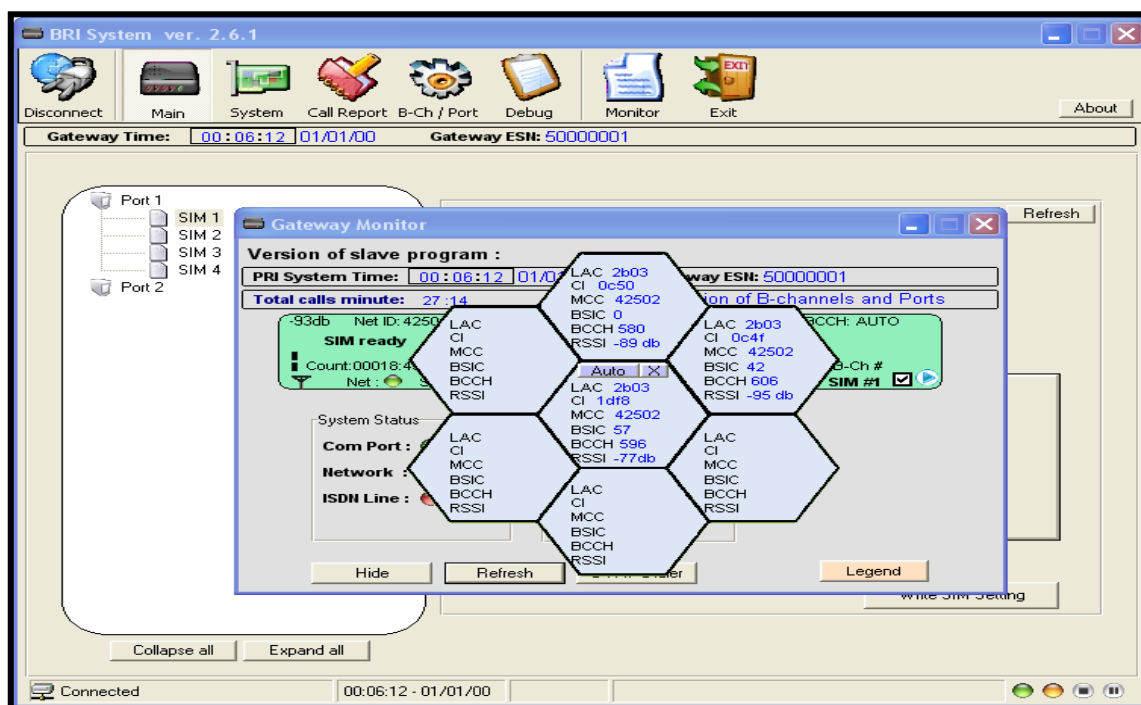
I) Click:
    The monitor screen opens.

LED Setting:

▶ A red LED indicates there is no connection.
▶ A yellow LED indicates there is a connection, but no data transfer.
▶ A green LED indicates transfer of data.

2) Left click on the play button for the port options:

BRI ISDN Gateway User Guide
www.eurotech-communication.com

▶ **Disable port:** disable or enable the port.

▶ **Refresh port:** reed the data from the port.

▶ **DTMF Dialer:** open DTMF dialer dialog box in it you can dial DTMF While Talking.

▶ **Get Cell Information:** display the cell information (see below).

▶ **Reset Port 1, 2:** reset the ports.

▶ **Reset Statistics:** reset the statistics of a specific SIM.

Cell Information: View the antenna reception quality of surrounding antennas.
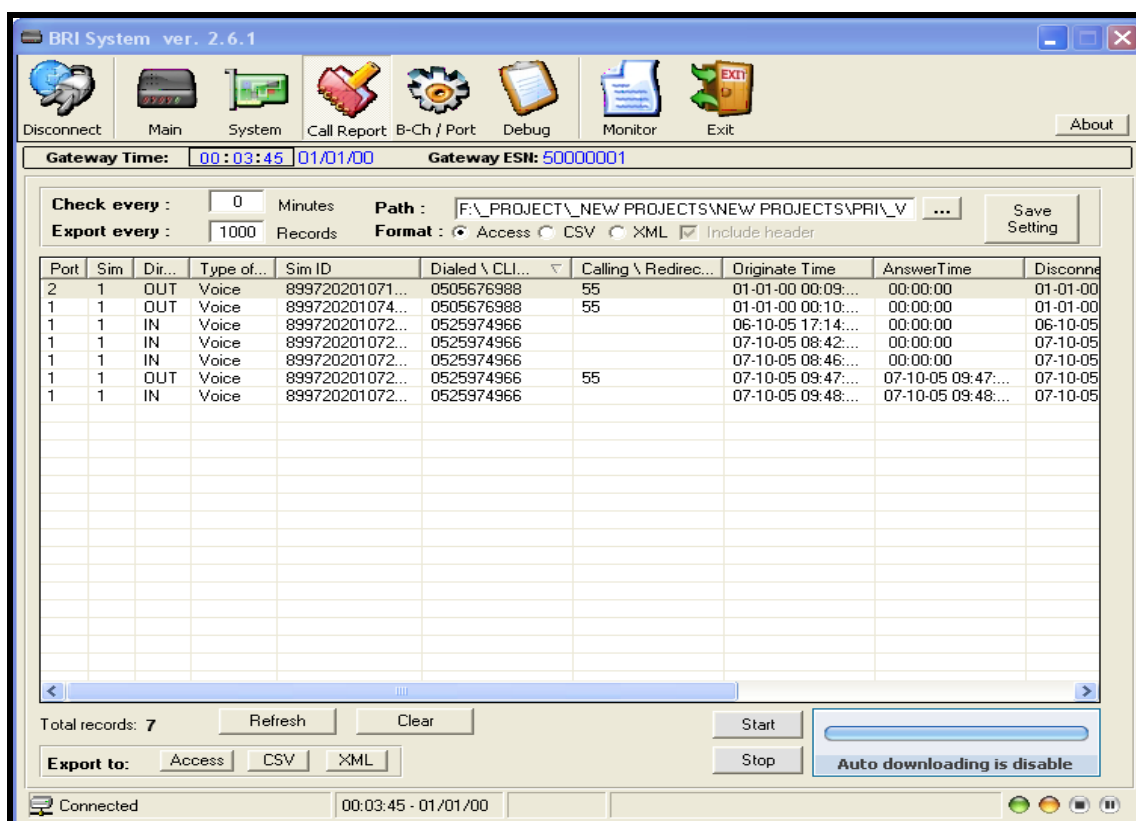

Legend:

- **LAC** - Location Area Code.
- **CI** - Cell ID
- **MCC** - Mobile Country Code
- **BSIC** - Basic Station Identity Code
- **BCCH** - Broadcast Control Channel
- **RSSI**- Receiver Signal Strength

7.2.   CALL REPORTS

▶ *To view call reports:*

I)   Click **Call Report**

3) Click **Start** to view the last calls that were made.

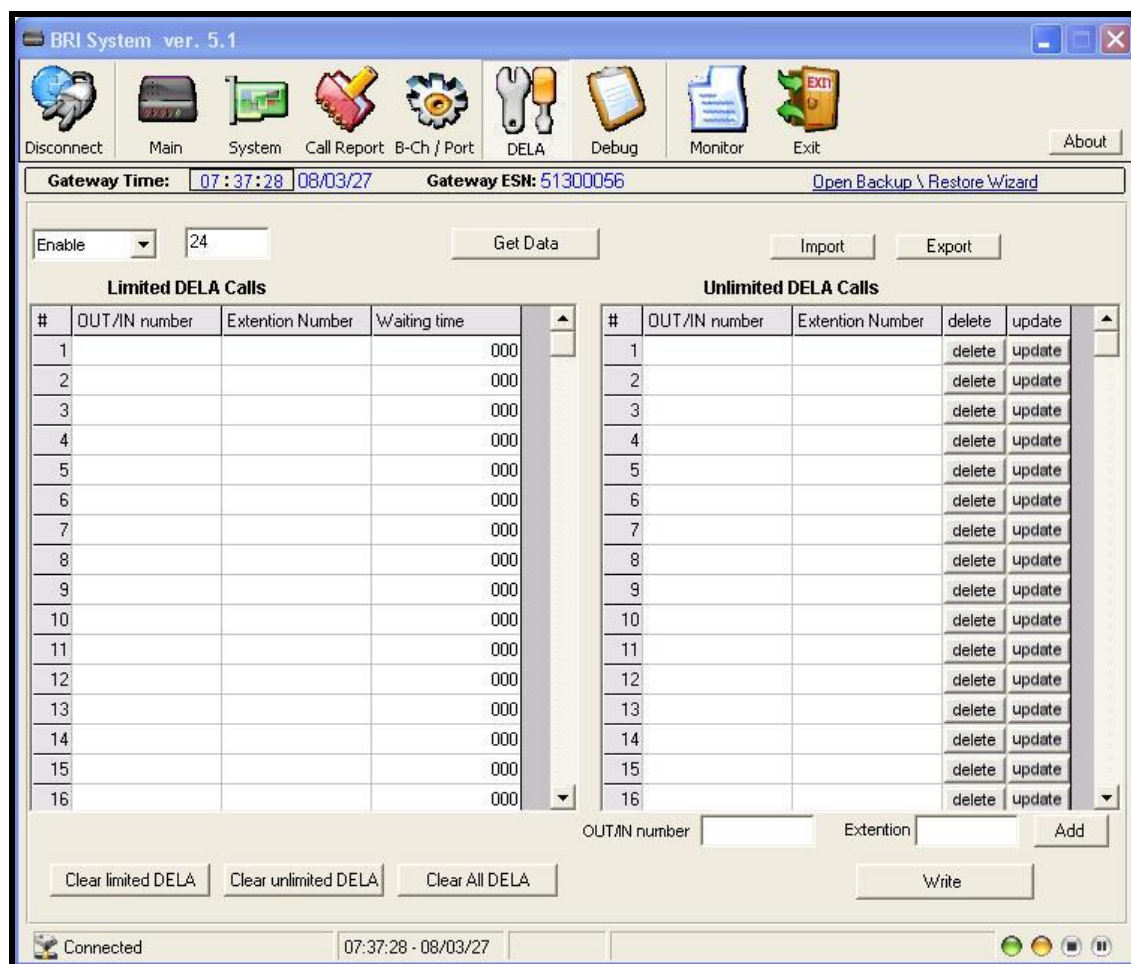4) Click **Access/CSV/XML** to export the calls list to a file in that format.

For Automatic exporting of the list to a file you need to define the **Path** of the file (above), the **Format**, the **Check every** timer and the **Export every**. The program will check if there is the amount of records in the memory (specified in **Export every**) every **Check every** minutes. If there is, the program will export the list to the file specified and will clear the memory.

BRI ISDN Gateway User Guide
www.eurotech-communication.com

7.3. ENTERING DELA

▶ *To enter DELA:*

I) Click .

DELA is a way to direct calls from a GSM number to specified extension.

There are two options.

▶ **Unlimited DELA Calls** – Enter the GSM number in the **OUT/IN number** box, enter the extension number in the **Extension** box, Click **Add** button to list them.
From now on, every call from this GSM number will be directed to this extension.

▶ **Limited DELA Calls** – Change the table to **Enable**, choose the time (in hours) you want each entry to remain in the table. A call from an extension to a GSM number will be entered the table.

From now on, until the timer will expire, whenever the specified GSM number will call, the call will be directed to the extension specified in the table.

You can Export/Import the data to a file.

8. APPENDIX A: TCP/IP SETTING

This section is only applicable to units that have been ordered with a TCP/IP connector.
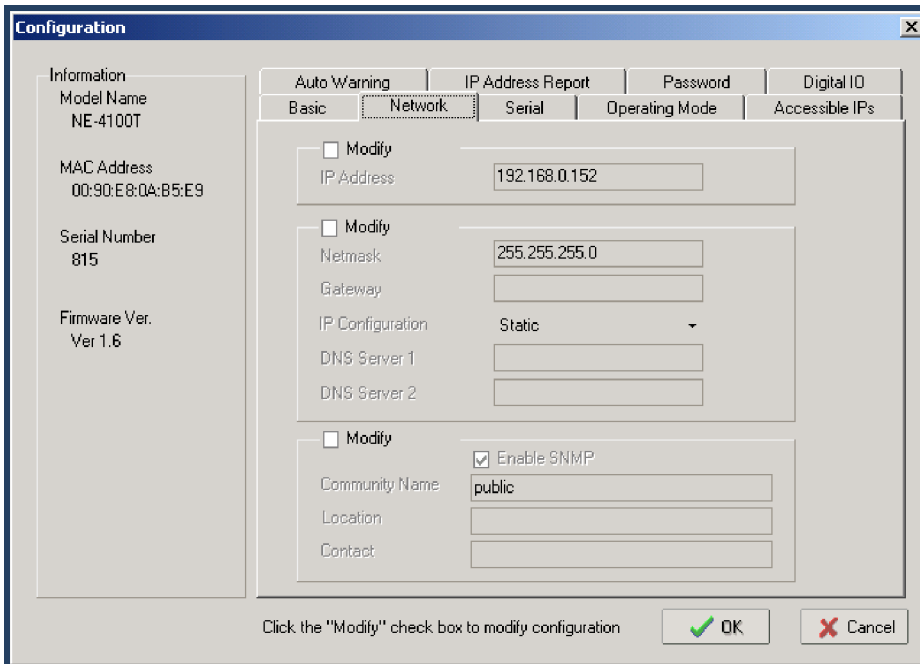
8.1. TCP/IP SETTINGS TASK LIST:

▶ *To define TCP/IP settings:*

1) Connect the BRI Gateway to your LAN via the COM connector.

2) Install the software **Network Enabler Administrator** which is provided on the installation CD at the directory **LAN Tools**.

3) Launch the software **Network Enabler** and click the **SEARCH** icon (upper left side) to find the BRI Gateway IP.

4) The BRI Gateway IP should appear in the next screen:

BRI ISDN Gateway User Guide
www.eurotech-communication.com
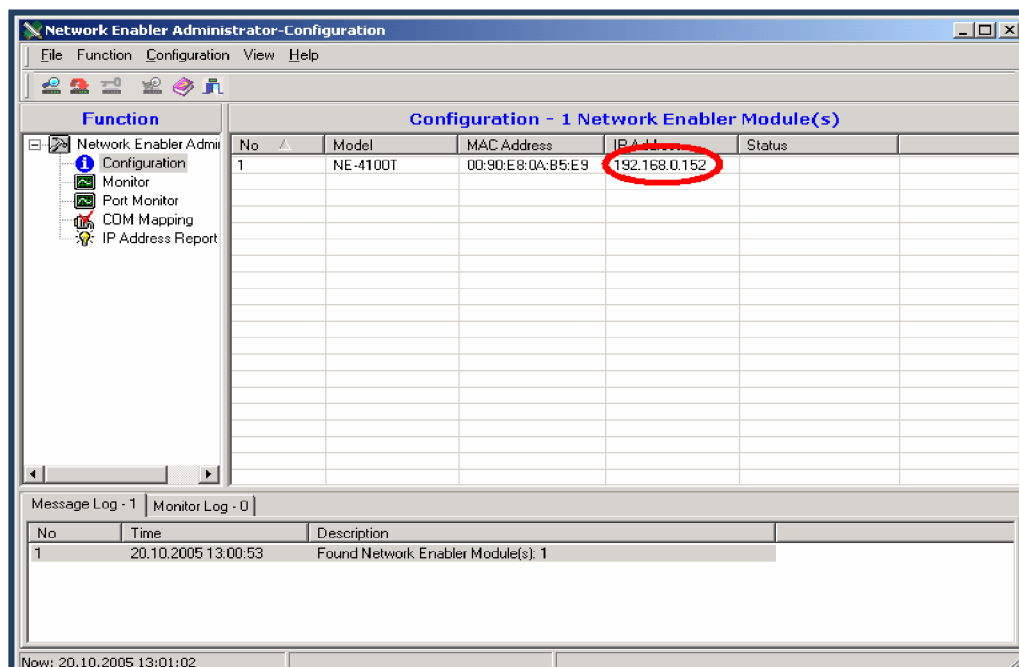
5) Double click on the IP, then select the **Network** tab.
   The next screen will open:

6) Check the **Modify** check box above the IP Address and enter the desired IP, click the **Modify** below to change **Netmask** and other settings; after you made changes, click the **OK** button.
7) Close the **Network Enabler**.
8) Click **Connect** button in the BRI Management.
9) Select **TCP/IP** in the **Connection Mode**.
10) Enter the **IP Address** and the **Port Number** (the default is port 4001).
11) Click **OK** to connect to the BRI Gateway via the TCP/IP.

BRI ISDN Gateway User Guide
www.eurotech-communication.com